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AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Amended) A driving assist system for a vehicle, comprising:
 - a state recognition device that detects a vehicle condition and a traveling environment of a subject vehicle;
 - a future state prediction device that predicts future driving conditions, the predicting including calculating at least one of [calculates] a current degree of proximity to a preceding vehicle [and/or] and an extent of influence on the subject vehicle due to future changes in surrounding environment [to predict future driving conditions], the calculating being based on detection results of the state recognition device
 - a risk potential calculating device that calculates risk potential around the subject vehicle based on the future driving conditions predicted by the future state prediction device and a driver's intentions.
2. (Original) A driving assist system for a vehicle according to claim 1, further comprising:
 - a reaction force calculating device that calculates an operation reaction force to be generated in a vehicle operating unit according to the risk potential calculated by the risk potential calculating device; and
 - a reaction force generating device that generates the operation reaction force calculated by the reaction force calculating device in the vehicle operating unit.
3. (Original) A driving assist system for a vehicle according to claim 2, wherein:
 - the vehicle operating unit is an accelerator pedal;
 - the reaction force calculating device calculates the operation reaction force to be generated in the accelerator pedal; and

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the reaction force generating device generates the operation reaction force in the accelerator pedal.

4. (Original) A driving assist system for a vehicle according to claim 1, further comprising:

a warning system that outputs a warning according to the risk potential calculated by the risk potential calculating device.

5. (Original) A driving assist system for a vehicle according to claim 1, wherein: the risk potential calculating device estimates the driver's intentions from acceleration and deceleration of the subject vehicle to calculate the risk potential.

6. (Original) A driving assist system for a vehicle according to claim 1, wherein: the risk potential calculating device estimates the driver's intentions from acceleration and deceleration of the subject vehicle and the preceding vehicle to calculate the risk potential.

7. (Original) A driving assist system for a vehicle according to claim 1, wherein: the state recognition device detects the vehicle condition and the traveling environment of the subject vehicle including a subject vehicle speed, a preceding vehicle speed, and a distance between the subject vehicle and the preceding vehicle;

the future state prediction device calculates a time headway based on one of a set of the distance between vehicles and the subject vehicle speed and a set of the distance between vehicles and the preceding vehicle speed as the extent of influence due to changes in the surrounding environment; and

the risk potential calculating device calculates the risk potential based on a reciprocal of the time headway.

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8. (Original) A driving assist system for a vehicle according to claim 7, wherein:
the risk potential calculating device calculates the risk potential based on a linear sum of the reciprocal of the time headway and a time differentiated value of the reciprocal of the time headway.

9. (Original) A driving assist system for a vehicle according to claim 7, wherein:
the risk potential calculating device calculates based on a linear sum of the reciprocal of the time headway, a time differentiated value of the reciprocal of the time headway, and a twice differentiated value of the reciprocal of the time headway.

10. (Original) A driving assist system for a vehicle according to claim 1, wherein:
the state recognition device detects the vehicle condition and the traveling environment of the subject vehicle including a subject vehicle speed, a preceding vehicle speed, and a distance between the subject vehicle and the preceding vehicle;

the future state prediction device calculates time to contact based on a relative speed and the distance between vehicles detected by the state recognition device as the degree of proximity to the preceding vehicle; and

the risk potential calculating device calculates the risk potential based on a reciprocal of the time to contact.

11. (Original) A driving assist system for a vehicle according to claim 10, wherein:
the risk potential calculating device calculates the risk potential based on a linear sum of the reciprocal of the time to contact, and a time integrated value of the reciprocal of the time to contact.

12. (Original) A driving assist system for a vehicle according to claim 10, wherein:

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the risk potential calculating device calculates the risk potential based on a linear sum of the reciprocal of the time to contact, a time integrated value of the reciprocal of the time to contact, and a time differentiated value of the reciprocal of the time to contact.

13. (Amended) A driving assist system for a vehicle, comprising:

a state recognition means for detecting a vehicle condition and a traveling environment of a subject vehicle;

a future state prediction means for predicting future driving conditions, the predicting including calculating at least one of [calculating] a current degree of proximity to a preceding vehicle [and/or] and an extent of influence on the subject vehicle due to future changes in surrounding environment [to predict future driving conditions], the calculating being based on detection results of the state recognition means

a risk potential calculating means for calculating risk potential around the subject vehicle based on the future driving conditions predicted by the future state prediction means and a driver's intentions.

14. (Amended) A vehicle, comprising:

a vehicle operating unit;

a state recognition device that detects a vehicle condition and a traveling environment of a subject vehicle;

a future state prediction device that predicts future driving conditions, the predicting including calculating at least one of [calculates] a current degree of proximity to a preceding vehicle [and/or] and an extent of influence on the subject vehicle due to future changes in surrounding environment [to predict future driving conditions], the calculating being based on detection results of the state recognition device

a risk potential calculating device that calculates risk potential around the subject vehicle based on the future driving conditions predicted by the future state prediction device and a driver's intentions;

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a reaction force calculating device that calculates an operation reaction force to be generated in the vehicle operating unit according to the risk potential calculated by the risk potential calculating device; and

a reaction force generating device that generates the operation reaction force calculated by the reaction force calculating device in the vehicle operating unit.

15. (Amended) A method for calculating risk potential, comprising
- detecting a vehicle condition and a traveling environment of a subject vehicle;
- predicting future driving conditions by calculating at least one of a current degree of proximity to a preceding vehicle [and/or] and an extent of influence on the subject vehicle due to future changes in surrounding environment based on the vehicle conditions and the traveling environment having been detected; and
- calculating the risk potential around the subject vehicle based on the predicted future driving conditions and a driver's intentions.

16. (Original) A method for calculating risk potential according to claim 15, wherein:
- a time headway is calculated based on one of a set of a distance between the subject vehicle and the preceding vehicle and a subject vehicle speed and a set of the distance between vehicles and a preceding vehicle speed as the extent of influence due to changes in the surrounding environment; and
- the risk potential is calculated based on a linear sum of a reciprocal of the time headway and a time differentiated value of the reciprocal of the time headway

17. (Original) A method for calculating risk potential according to claim 15, wherein:

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a time headway is calculated based on one of a set of a distance between the subject vehicle and the preceding vehicle and a subject vehicle speed and a set of the distance between vehicles and a preceding vehicle speed as the extent of influence due to changes in the surrounding environment; and

the risk potential is calculated based on a linear sum of a reciprocal of the time headway, a time differentiated value of the reciprocal of the time headway, and a twice differentiated value of the reciprocal of the time headway.

18. (Original) A method for calculating risk potential according to claim 15, wherein:

time to contact is calculated based on a relative speed and a distance between the subject vehicle and the preceding vehicle as the degree of proximity to the preceding vehicle; and

the risk potential is calculated based on a linear sum of a reciprocal of the time to contact and a time integrated value of the reciprocal of the time to contact.

19. (Original) A method for calculating risk potential according to claim 15, wherein:

time to contact is calculated based on a relative speed and a distance between the subject vehicle and the preceding vehicle as the degree of proximity to the preceding vehicle; and

the risk potential is calculated based on a linear sum of a reciprocal of the time to contact, a time integrated value of the reciprocal of the time to contact, and a time differentiated value of the reciprocal of the time to contact.